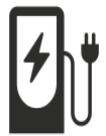




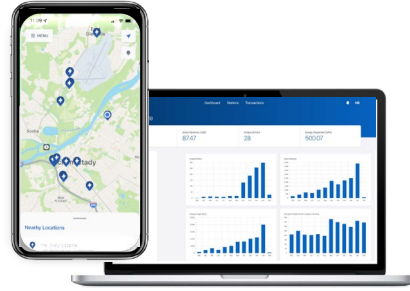
JD Martin Company



E-Mobility Solutions Guide
January 2023



E-MOBILITY SOLUTIONS



EVSE Management Software;
API Integrations; Driver Mobile App; 24/7 Customer Support; White labeled Options



Multiple Stand Alone Single and Dual Port Level 3 Chargers; V2G Chargers

22 – 180kW Range

EV Chargers



Multiple Commercial Level 2 Chargers; Flex Chargers;
Wall/Pedestal Mounts; CC Readers; Cable Retractors

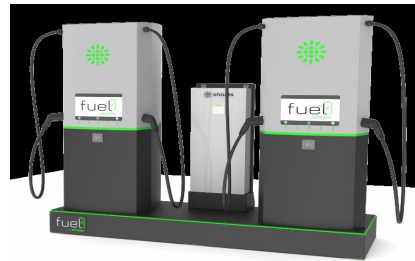
5-19kW



Multiple Modular Dual Port Level 3 Chargers; NEVI Compliant Set Ups

150 – 350 kW Range

EV Charging Infrastructure



Above Ground Patented Raceway for Quick, Less Costly Installation

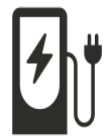
Battery Energy Storage Systems (BESS)



BESS for Level 2 EV Chargers



BESS for Level 3 EV Chargers



EV Charger Solutions



LEVEL 2 CHARGERS

EV Charging Hardware



CHARGE PORT LIVINGSTON ENERGY

CP203

Features

- ✓ Level 2 Charger
- ✓ Custom Software & App
- ✓ Universal Type 1 Plug
- ✓ 24/7 Customer Service



Specifications

MAX Output Rating	32A 7.68 kW Maximum Output- For use with 40A(or greater) Circuit Rating
Alternate Adjustable Output Ratings	24A 5.76 kW Maximum Output- For use with 30A Circuit Rating
Electrical Circuit/ Input Power Requirements	208-240VAC 50/60Hz Circuit Requirement: Dedicated Circuit Conductors: Line 1, Line 2, Earth Ground



CHARGE PORT LIVINGSTON ENERGY

CP208

Features

- ✓ Level 2 Charger
- ✓ Custom Software & App
- ✓ Universal Type 1 Plug
- ✓ 24/7 Customer Service



Specifications

Max Output rating	80A 19.2kW
Alternate Adjustable Output Ratings	24A, 32A, 40A, 48A, 80A
Electrical Circuit/ Input Power Requirements	208-240VAC 60Hz Circuit Conductors: Line 1, Line 2, Earth Ground

LEVEL 2 CHARGERS (Con't)

 **EV Charging Hardware**

 **Made in America**

EVM-1

Features

- ✓ Buy American Compliant
- ✓ Fleet-Ready Custom Access
- ✓ Type 1 J1772 Plug Type
- ✓ Cellular/Wifi Network Options
- ✓ 6-19.2kW Flexible Output
- ✓ Dynamic Load Management Capable

Max Output Rating EVM-1-80	80A 19.2kW
Max Output Rating EVM-1-32	32A 7.68kW
Alternate Adjustable Output Ratings	6kW, 7.6kW, 10kW, 12kW, 19.2kW 16A, 24A, 32A, 40A, 48A, 80A
Electrical Circuit / Input Power Requirements	208-240VAC 60Hz Circuit Conductors: Line 1, Line 2, Earth Ground
Enclosure	NEMA 4, Indoor / Outdoor Rated
Operational Ratings	Temperature: -22°F to 122°F (-30°C to 50°C) Humidity: 95% RH non-condensing
Overall Dimensions	6.5" x 14" x 3.9"
Mounting	Wall or Pedestal Options



LEVEL 2 CHARGERS (Con't)

EV Charging Hardware Capabilities

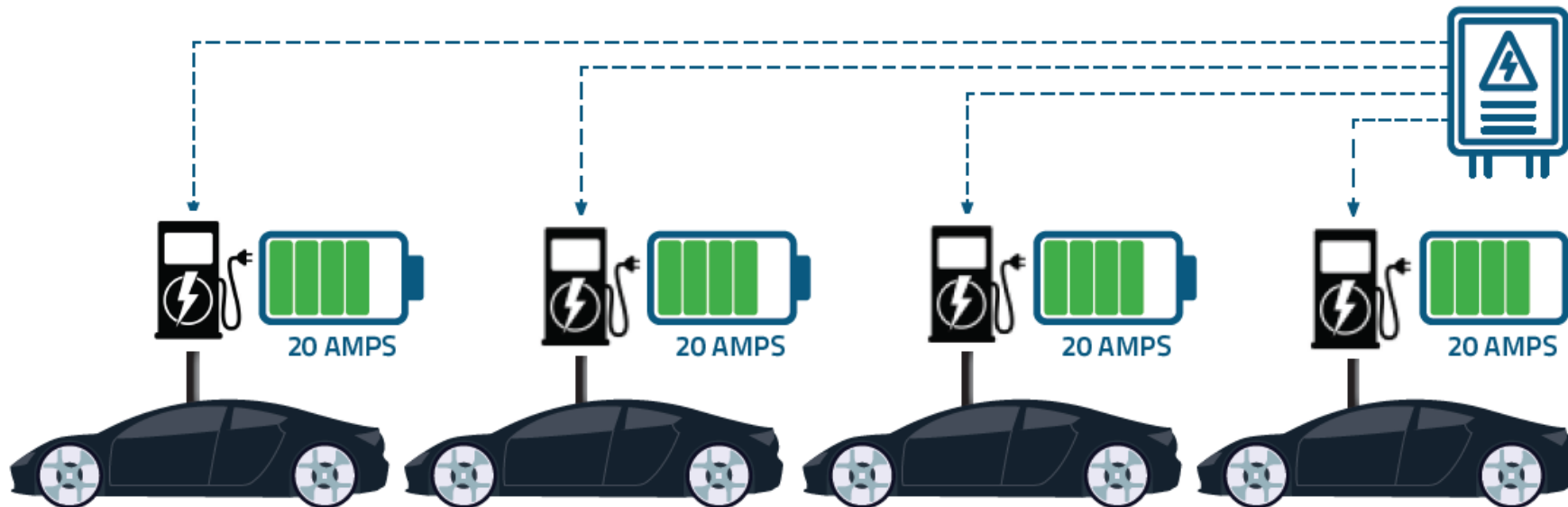
Local Load Management

Example: 100 Amp Main Panel (80 Amp Load Limit per NEC)

Livingston's advanced load management capability delivers main electrical panel / electrical circuit load balancing of up to 20 charging station units in a group, thus providing the opportunity to avoid costly electrical infrastructure upgrades—a great solution for Multi-Unit, Workplace, Commercial and Fleet applications!

CONFIGURATION OPTION 1: UNIFORM DISTRIBUTION (UD)

The output current of each iEVSE in use is reduced proportionally to not exceed the main panel/circuit allowance



Local Load Management (LLM) capability supported via unit-to-unit Wi-Fi communication



LEVEL 3 CHARGERS

EV Charging Hardware



- **L3S50 and L3R-100 (50kW and 100kW all in one)** – Level 3 DC Fast Chargers bypass slower on-board chargers providing DC power directly to the battery, greatly increasing the charging speed. DC fast charging is essential for high mileage/long-distance driving and fleets. The quick turnaround enables drivers to recharge quickly versus many hours from an AC Level 2 charger.

Features:

- CHAdeMO/Combo & CCS1 Connectors
- 15" Outdoor Color Display
- Credit Card Reader and RFID Readers
- All-In-One Charger Enclosure
- Measures 34" W x 86" H x 22" D (850 lbs)

- **HPCD (modular system for 100/150/200/350kW)**

Level 3 DC Fast Chargers bypass slower on-board chargers providing DC power directly to the battery, greatly increasing the charging speed. DC fast charging is essential for high mileage/long distance driving and fleets. Charge in as little as 10-15 minutes. This system is also NEVI compliant.

Features

- 200 to 950 Max DC Voltage
- Measures 22"W x 15"D x 97"H (600 lbs)
- Requires HPCT Power Cabinet
- Credit Card and / or RFID Payment Options
- SAE Combo CCS1 and CHAdeMO



www.solution.energy

LEVEL 3 CHARGERS

EV Charging Hardware



- **ChargeBox System**
Ultra Fast Charging on the power-limited grid
- Features:*
 - Up to 320kW charging power
 - Zero costs for grid expansion
 - Limited space needed for install
 - Future-proof investment
 - Battery buffered fast charging solution

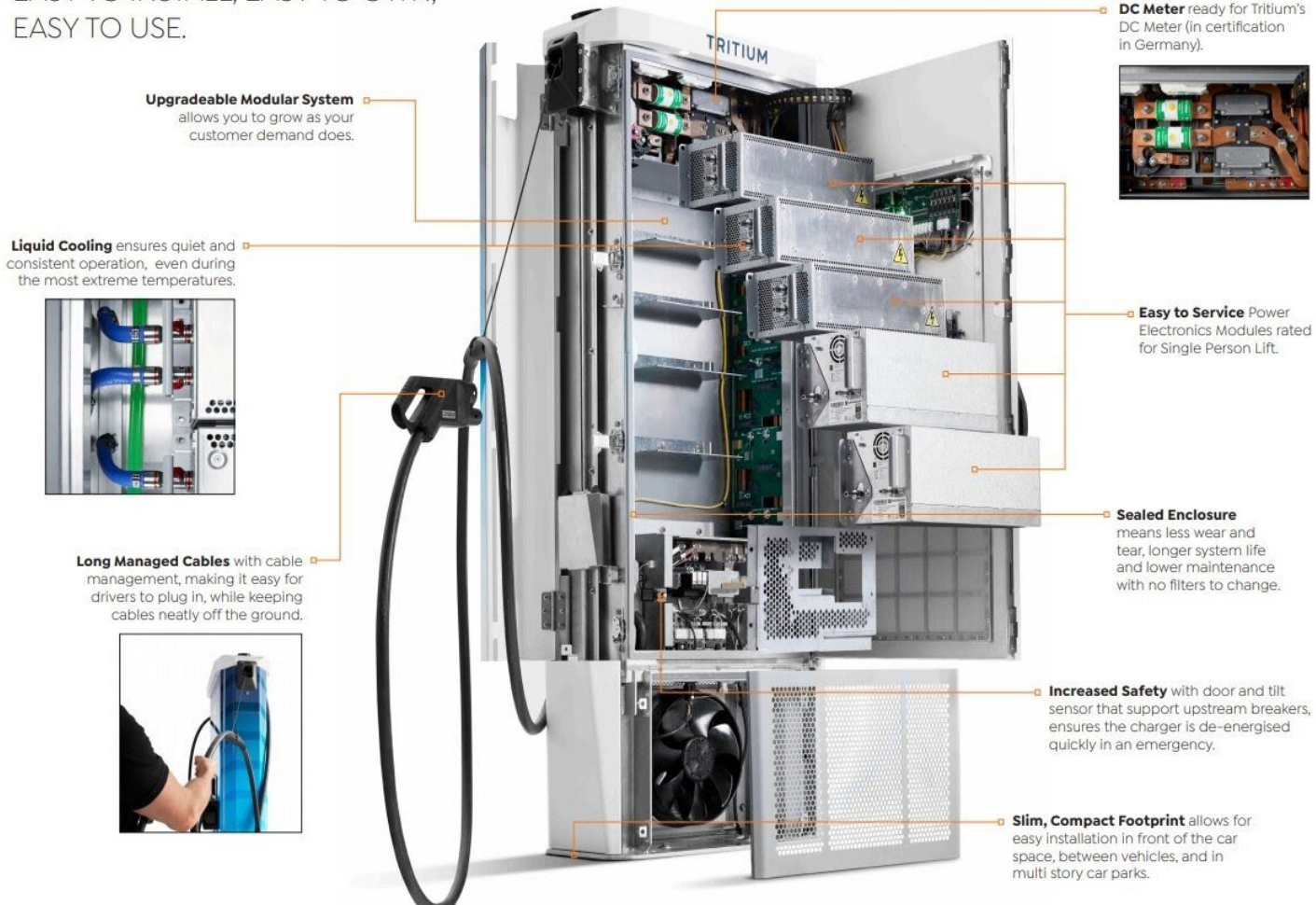


- **ChargeBox Dispenser**
Fast Charging Station
- Features:*
 - Up to 320kW charging power or 160kW out of 2 dispensers simultaneously
 - Liquid-cooled charging cable
 - 10-inch sunlight readable touch screen
 - Suitable for residential areas
 - Requires a minimal amount of space
 - Available up to a distance of 109 yd from the ChargeBox Booster
 - Connected to leading backend systems via OCPP1.6J

LEVEL 3 CHARGERS (Con't)

EV Charging Hardware

EASY TO INSTALL, EASY TO OWN,
EASY TO USE.



Upgradeable Modular System
allows you to grow as your
customer demand does.

Liquid Cooling ensures quiet and
consistent operation, even during
the most extreme temperatures.



Long Managed Cables with cable
management, making it easy for
drivers to plug in, while keeping
cables neatly off the ground.



DC Meter ready for Tritium's
DC Meter (in certification
in Germany).



Easy to Service Power
Electronics Modules rated for
Single Person Lift.

Sealed Enclosure
means less wear and
tear, longer system life
and lower maintenance
with no filters to change.

Increased Safety with door and tilt
sensor that support upstream breakers,
ensures the charger is de-energised
quickly in an emergency.

Slim, Compact Footprint allows for
easy installation in front of the car
space, between vehicles, and in
multi story car parks.



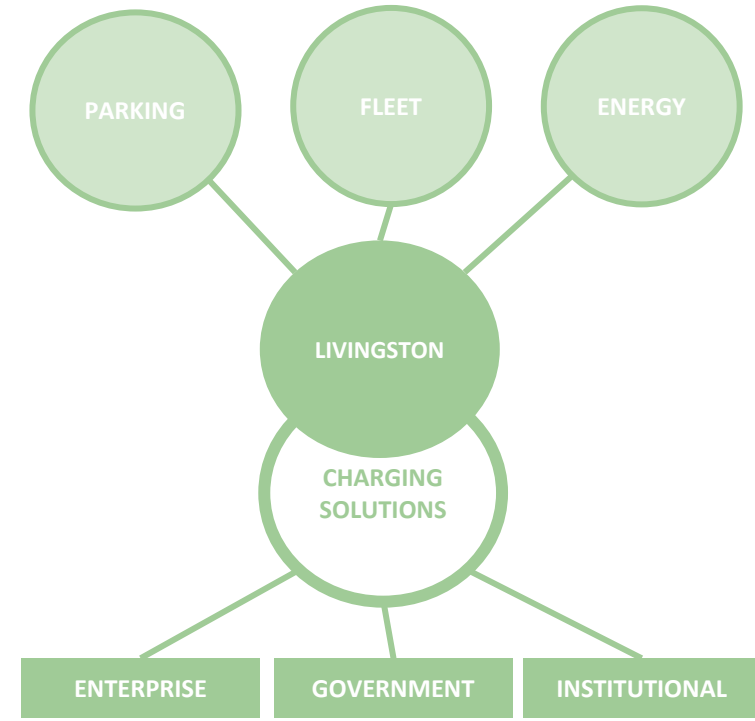
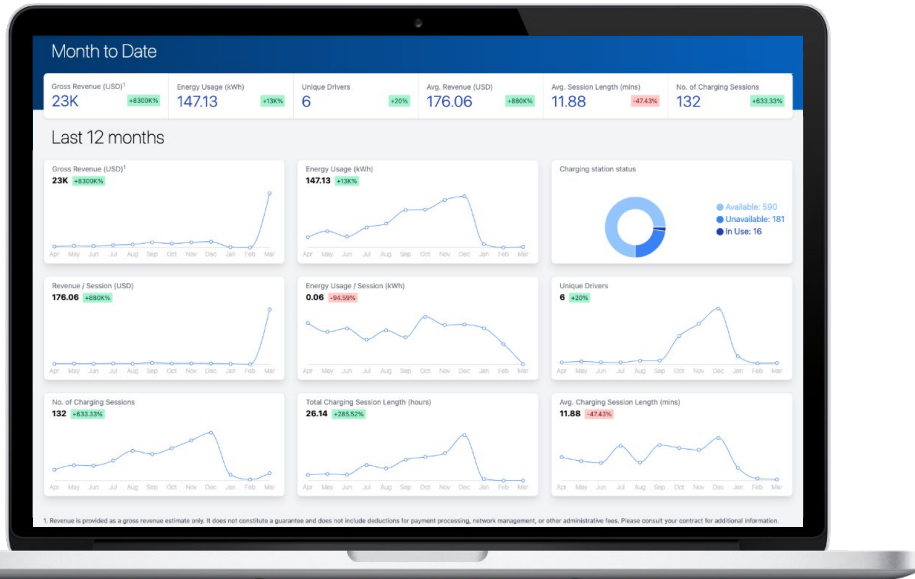
- **RTM75** – can be deployed as 75kW or 50kW which can be upgraded in the future. Small footprint, liquid cooling and a sealed enclosure. Can do simultaneous charging, 200V to 920V DC output, and is ISO 15118 ready.
- **PKM150** – can be deployed as 150kW or 100kW which can be upgraded in the future. Small footprint, liquid cooling and a sealed enclosure. Can do simultaneous charging, 200V to 920V DC output, and is ISO 15118 ready. This can be setup to meet all NEVI requirements, including Buy America compliance.

CHARGER INTEGRATION

EV Charging Hardware Integrated Value-adds

The interconnections that bring our partner systems together.

From energy management and microgrid operators, to OEMs and fleet vehicle managers, our API design methodology enables modularity and rapidly scalable data exchange and communication platform that connects industry services providers with clients in major market sectors.



Growth opportunities identified: the market needs advanced charging products, open integration approach, targeted advertising, international collaboration, utility demand-response programs, and wholesale market participation of charging assets with V2G generation capabilities

PROGRAM APPROVED

EV Charging Hardware/Software Value-adds

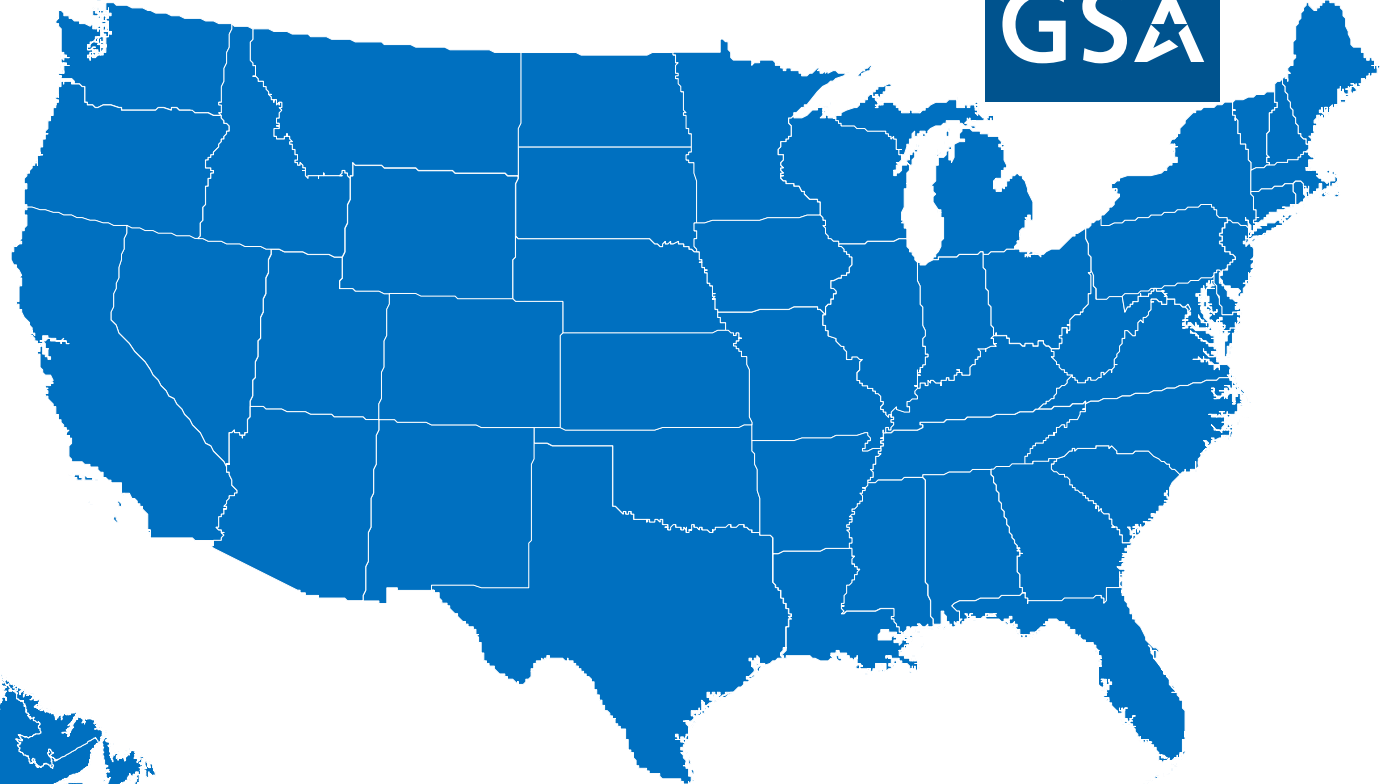
Livingston awarded contracts
& approved for utility
programs

Awarded multiple blanket contracts across the
entire United States and Canada in 2021

Approved for utilities in 48 states & provinces

Sourcewell
Formerly NJPA

Awarded Contract



BPA Contract number:
47QMCA22A0009





***EV Charging Infrastructure Solutions
Above ground***



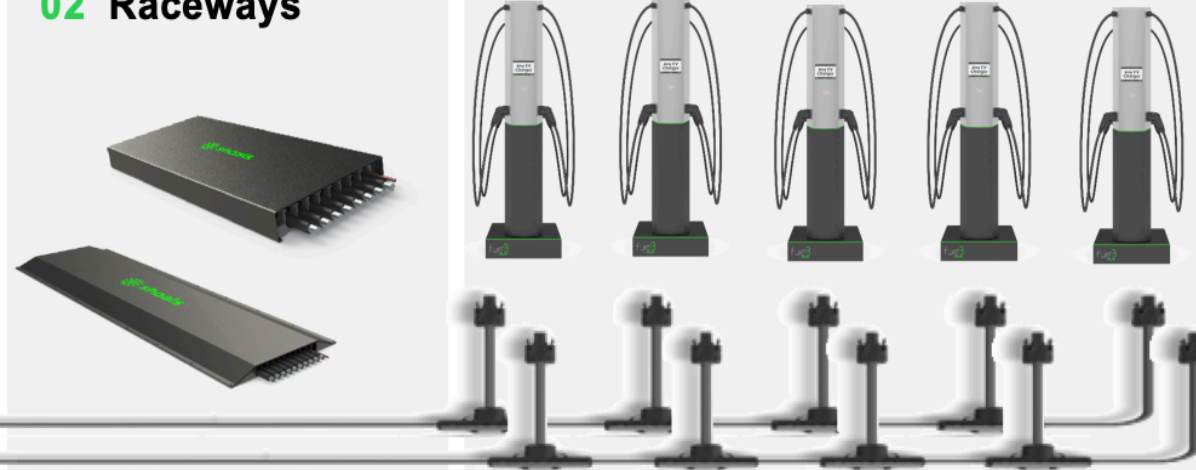
Shoals EV Charging System Solutions

01 Fuel Power Center



- Prefabricated plug-n-play EV power center for Level 2 chargers
- All components installed in the factory
- Modular Interlocking system
- Reduce site disruption and overall time on site

02 Raceways



- Above-ground cable raceway that eliminates the need for trenching
- Compatible with both conventional cabling and EV-BLA
- Reduces cost of deployment and time on site by up to 40%

03 EV-BLA

- Patented trunk bus solution similar to solar BLA
- Eliminates individual homeruns from each dispenser. Reduces wire runs by up to 75%
- Capable of above-ground installation
- Utilizes plug-n-play connectors for rapid deployment
- Estimated total deployed cost reduction of 30-40%

04 Quick Connect Bases for Chargers



- Prefabricated skidded dispenser with up to four Level 2 charge points
- Flexible choice of charger OEM
- Designed to install at the intersection of four parking spots
- Reduces placement (fewer pads), cabling and interconnection costs
- Ideal solution for fleets, retail, office and MUD

Targeting 20-30% reduction in installed cost versus conventional solutions

ABOVE GROUND INSTALLATION

Shoals Fuel Foundation EV Power Center



Description

- Primary Service Disconnect – as required
- Step down transformer – 480V to 208V
- Protection panel
- Prewired for rapid site placement
- Side or bottom access for cabling
- Designed for direct connection to Shoals Raceway

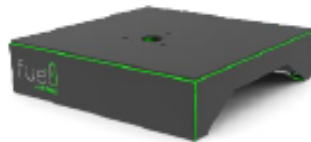
Technical Specs	115kW - Small EVPC	230kW - Medium EVPC	345kW - Large EVPC
Input Voltage	480V	480V	480V
Input Current	Up to 200A	Up to 400A	Up to 600A
Output Voltage	208Y/120V (240V Optional)	208Y/120V (240V Optional)	208Y/120V
Output Current	Up to 400A	Up to 800A	Up to 1200A
Enclosure Rating	NEMA 3R	NEMA 3R	NEMA 3R
Max. Ambient Temp. Rating	40°C	40°C	40°C
Power Center Size (H x W x D)	61" x 65" x 32.5"	79.5" x 74.5" x 34.5"	79.5" x 82.5" x 41.5"
Approximate Weight	2200 lbs.	3500 lbs.	4100 lbs.

ABOVE GROUND INSTALLATION

Shoals Quick Connect Bases for Level 2 Chargers

Description

- Addresses two parking spots in a back-to-back or side-to-side configuration
- Addresses four parking spots in a back-to-back and side-to-side configuration
- Compatible with any Level 2 charger
- Optional pedestal to mount wall-mount chargers on a Shoals Quick Connect Base
- Assembled and pre-cabled in the plant which reduces cost and site complexity
- Quick Connect Base is designed for easy and rapid placement over Shoals Raceway
- Connectorized quick and simple connection to Shoals EV BLA
- Optional Individual unit breakers for local disconnect



Quick Connect Base
for Level 2 Charger



External Breaker Box



Quick Connect Base set up
for 4 parking spots



Quick Connect Base
w/Vertical Riser

ABOVE GROUND INSTALLATION

Shoals Quick Connect Base for DC Fast Chargers

Description

- Addresses two parking spots in a side-to-side configuration
- Compatible with any Level 3/4 charger
- Pre-cabled and assembled in the plant which reduces cost and site complexity
- Quick Connect Base is designed for easy and rapid placement
- Side or bottom cable access
- Local disconnects or individual unit breakers inside the optional protection panel



Two DC Fast Chargers
on a Quick Connect
Base with Protection
Panel

ABOVE GROUND INSTALLATION

Shoals eMobility Certification Updates

Fuel by Shoals®

Following components are listed as of September 15th 2022

Power Center (500KVA and 300KVA) consisting of:

- Disconnect Panel- UL98, UL98C
- Transformer- UL1561
- Distribution Panel- UL67
- Submersible lugs- UL486D
- Interconnecting wire- UL9703
- *Shoals believes that the Power Center individual listings will suffice for most AHJs. However, we are proceeding with a Power Center Assembly certification which we expect will address any outlier AHJ concerns. These tests will be conducted by Intertek at the Shoals facility with completion scheduled for 9/2.

Raceway, single stack

- UL870, UL5

Raceway, double stack

- UL870, UL5

Raceway Clips

- UL2239

BLA

- UL9703

Charger/Riser assembly with circuit breakers

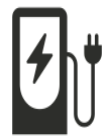
- UL50, UL50E, UL489

Charger (BTC and Siemens)

- UL2594-2016

Charger/Riser assembly with fuses

- UL50, UL50E, UL67



Battery Energy Storage Solutions



BATTERY ENERGY STORAGE SYSTEMS (BESS)

FORTRESS POWER

eVault Max 18.5 Lithium Battery Storage



KEEP YOUR HOME & BUSINESS SAFE AND CONNECTED WITH FORTRESS POWER



LATEST TECHNOLOGY
We Use Long Lasting and Safe Tier 1 Lithium Iron Phosphate technology



LARGEST CAPACITY
Full Home Back Up with the Largest Battery that is Scalable Up to 370kWh



MAXIMIZE INVESTMENT
Reduce Electric Bill and Maximize Your Solar Investment with Battery Storage



GRID INDEPENDENCE
Achieve Grid Independence during Power Outages



10 YEAR WARRANTY
With Unlimited Partial Cycles



98% ROUND TRIP EFFICIENCY
Maximize Your Solar Energy Output

eSpire 233

COMMERCIAL AND INDUSTRIAL BATTERY STORAGE



125 kW PCS (inverter)

233 kWh ESS (battery)



Supported Applications

- Peak shaving for demand charge management
- Load shifting for time-of-use savings
- Real and reactive power compensation to improve power quality
- Standalone operation in off-grid mode for power backup
- Store excess solar energy during the day and use at another time

Product Features

Safe Technology & Multi-level Protection

The solution uses the best-in-class Tier 1 Lithium Iron Phosphate (LFP) chemistry for the highest level of safety, thermal stability, and reliability; An integrated, multi-level Battery Management System (BMS) monitors, optimizes, and balances the system.

Compact Design for Flexible Install

The product has a slick and compact design that can be flexibly fit into indoor and outdoor space.

Advanced Liquid Cooling for the Extended Battery Lifespan

The unique liquid cooling system optimizes the battery thermal performance by 3 times, which extends the battery lifespan and increases your investment.

Turnkey System for Fast Install

Fully integrated, pre-configured package system reduces on-site installation time; includes inverter(s), battery trays, racks, BMS, local Controller, HVAC, fire suppression, isolation transformer and outdoor rated enclosure.

Easy & Flexible to scale (Easy scalability)

This outdoor rated, modular solution can be expanded to 3.50 MWh capacity easily (Max. 15 unit in parallel).

Excellent Local Support

Our US based technical support team can help you from project design to completion.

BATTERY ENERGY STORAGE SYSTEMS (BESS)

HOW FORTRESS POWER COMPARES TO ALTERNATIVE POWER BACK-UP SOLUTIONS

	Fortress Power Solution	Other Lithium Ion Solution	Lead Acid	Generator
Applications	Backup power, time of use, self-use, & off-grid	Backup power, time of use, self-use, & off-grid	Backup power	Backup power
Depth of Discharge	100%	100%	50%	N/A
Potential Harm	Safest Technology	Potential fires and thermal runaway	Risk of harmful gases	Environmental pollution
Life Cycles	Up to 6,000	Up to 3,000	500-1,000	N/A
Warranty	10 years*	10 years	2 years	2 years
Fuel Cost	\$0	\$0	\$0	\$50-100/day
Maintenance	No	No	Yes	Yes

*US territory & Canada

BATTERY ENERGY STORAGE SYSTEMS (BESS)



eVault Max Specifications

For Level 2 Chargers
Up to 19.2 KWH

TECHNICAL SPECIFICATIONS EVAULT MAX 18.5 KWH

Total Energy [kWh]	18.5
Capacity [Ah]	360
Nominal Voltage [V]	51.2 (48)
Voltage Range [V]	46 - 56
Recommended Charge Current [A]	150 (7.6 kW)
Max. Charge Current (Continuous) [A]	180 (9.2 kW)
Max. Discharge Current (Continuous) [A]	230 (12 kW 30 min)
Max. Pulse Current (for 10 sec) [A]	250 (12.8 kW 5 sec)
Charge Temperature [F]	32°F ~ 120°F (0°C ~ 49°C)
Discharge Temperature [F]	-4°F ~ 140°F (-20°C ~ 60°C)
Recommended Storage Temperature [F]	6 months: 14°F ~ 77°F (-10°C ~ 25°C) 3 months: -4°F ~ 113°F (-20°C ~ 45°C)
Dimension [WxDxH, inch]	20.3" x 20.3" x 42.2" (515 x 515 x 1073 mm)
Weight [lbs]	520
Enclosure Protection Rating	IP55
Mounting Options	Floor standing
Certificates	UL 1642, UL 1973, UL 9540, CEC, SGIP
Warranty	10 years
Life Cycle	8,000 Cycles (@ 80% DoD)
Depth of Discharge (DOD)	up to 100%
Scalability	Maximum 20 in Parallel (370 kWh)
Communication	CAN/RS485
High Current Circuit Breaker	250A
Efficiency	> 98%

BATTERY ENERGY STORAGE SYSTEMS (BESS)



eSpire 233 Specifications For Level 3 DC Fast Chargers Scalable to 3.5 MWH

Model	eSpire 233	
Battery Data		
Battery Bank Capacity (kWh)	233	
Nominal Voltage (V)	832	
Operation Voltage Range (V)	728.5 - 936.4	
Battery Capacity (Ah)	280	
Battery Structure	1P260S (5pack)	
Cell Type	LFP Prismatic	
Cycle Life @25 C	>6000	
DOD	90%	
Ambient Working Temperature	-25 - 45 C (-13 ° F - 113 ° F)	
Cooling	Integrated Liquid Cooling	
Battery Bank Scalability	up to 15 (3.5 MWh)	
Inverter Data		
Rated AC Output Power (kVA)	125	
Rated Grid Voltage Inverter Output	480V Delta	
Rated Grid Voltage at Transformer	480V Phase Y (Wye)	
Grid Voltage Range Vac	422.4 to 528 V (-12%, +10%)	
Rated Grid Frequency (Hz)	60 / 50 Hz	
Rated AC Current	150.4 A	
Max. Continuous AC Current	167 A	
Current THD	IEEE 1547 Compliant, <3% at rated power	
Power Factor	-1 to 1	
Transformer Rating	125 kVA	
System Data		
	Battery	Inverter
Ambient Working Temperature	-25 - 45 C (-13 ° F - 113 ° F)	
Storage Temperature Range	-25 - 55 C (-13 ° F - 131 ° F)	
Unit Dimension (W x D x H)	1,300 x 1,300 x 2,280 mm (51.2 X 51.2 X 89.8 in)	600 x 800 x 1,766 mm (23.6 X 31.5 X 69.5 in)
Packing Weight kg/lb	2510 / 5533	310 / 683
Packing Dimension (W x D x H)	1,300 x 1,300 x 2,340 mm (51.2 x 51.2 x 92.1 in)	1000 x 1,200 x 2,000 mm (39.4 x 47.2 x 78.7 in)
Packing Weight kg/lb	2525 / 5566	418 / 921
Certification	UL1973, UL9540(pending), UL9540A, UL1741/1741SA(pending), IEC62619, IEC62477-1, IEC61000-6-2/4 GB/T 34133-2017, UL1741, IEEE1547.1, UL1741SA, IEC62477, IEC61000	

E-Mobility Solutions

Your needs are met

Timely solutions for the industry

SERVICE AREAS



CONSULTATION



**SPECIFICATION &
IMPLEMENTATION**



**FUTURE FOCUSED
SOLUTIONS**



**FEDERAL & LOCAL
REBATES/INCENTIVES**

JD MARTIN / E-Mobility
www.jdmartin.com

OUR SERVICES

Complete solutions provider for all E-Mobility needs. EV chargers, infrastructure, battery energy storage, government incentives and rebates.



CONSULTATION

- ✓ System size
- ✓ Installation
- ✓ Product selection
- ✓ Return on investment



SPECIFICATION & IMPLEMENTATION

- ✓ Software
- ✓ Building power
- ✓ Site location
- ✓ Commissioning



FUTURE FOCUSED SOLUTIONS

- ✓ Expandable solutions
- ✓ Cyber secured
- ✓ Portable solutions
- ✓ Electric Vehicle adaptability



REBATES / INCENTIVES

- ✓ Federal
- ✓ Municipalities
- ✓ State
- ✓ Utilities

Thank you!

For More Information Contact

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